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**PATENT SPECIFICATION**

**406,211**



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Complete Accepted: Feb. 22, 1934.

**COMPLETE SPECIFICATION.**

**Window Cleaning Apparatus.**

I, PAUL GROSSE, of No. 1, Zöllnerplatz, Dresden—A., Germany, of German Nationality, do hereby declare the nature of this invention, and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:

This invention relates to a window cleaning apparatus of the type in which a handle is connected to a cloth holder by means of a ball joint.

The object of the invention is to enable the inner and outer sides of windows, especially in the case of narrow box or double frame top windows to be cleaned without leaning out.

According to the invention the cup for accommodating the ball of the joint has a cover provided with an aperture on one side to accommodate the element connecting the rear plate of the cloth holder with a handle. This connecting element consists of an arm carrying the ball on one end and the handle at the other end. This arm is straight at its end carrying the ball, then off-set and bent at its other end at an angle at the point where it is connected with the handle.

Apparatus are already known, in which the cleaning cloth is stretched over a plate and this plate can be adjusted at an angle relative to the handle by means of articulated arms. However, in these apparatus the automatic adjustment during work is lacking because the individual angle adjustments must be previously fixed by clamping nuts and consequently render necessary continual adjustment.

Only the automatic general adjustment of the plate enables the whole surface of the plate with the cleaning cloth stretched thereover to become effective, in spite of the necessary continually changing position of the handle. Thus, for example, in the case of large slot windows the apparatus can be moved in one pass from the top to the bottom and over the entire width with the plate bearing flat on the window frame. The same applies for inclined surfaces and sky light windows without it being necessary to in any way adjust and fix the apparatus.

The apparatus according to the invention

[Price 1/-]

tion is however particularly practical for cleaning the inner and outer surfaces of panes of top light windows. Owing to the ball joint bearing of the off-set and bent intermediate arm this arm can be folded over flat on to the plate and easy access is afforded to the top windows, even in the case of narrow box or double frame windows. The cleaning of the outer panes just as easily can be effected from the room with the handle inclined towards the room so that the necessity of standing on the window board and the accompanying danger of falling out in the event of becoming giddy or slipping are eliminated.

The construction of the stretching plate for the cleaning cloth has been also improved in that lugs or noses are provided which project like short fingers beyond the corners and the front face of the plate. Thus, the strong woolly cloths project in the corners through the fingers slightly beyond the remaining surface and the corners of the window can be thoroughly cleaned which was hitherto impossible.

An embodiment of the invention is illustrated in the accompanying drawing in which:

Fig. 1 is a side elevation showing the cleaning apparatus in use.

Fig. 2 is a rear elevation of the apparatus.

Fig. 3 shows the ball joint in vertical section.

Fig. 4 is a plan view of the cross blade spring.

Fig. 5 shows the front side of the cleaning plate.

Fig. 6 shows the rear side of the cleaning plate.

Fig. 7 shows the rear side of the cleaning cloth.

Fig. 8 is a cross section of Fig. 7.

The apparatus comprises a plate 1 of wood, artificial resin composition or other suitable material. A ball cup 2 with cover 3 is fixed by screws or cast on the plate 1 and accommodates one end of an arm 5 constructed as a ball 4. The arm 5 extends from the ball through an aperture 10 in the cover 3 and has an off-set

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portion 6 and a bend 7. A sleeve 8 adapted to be slipped on to a handle 9 is mounted on the other end of the arm 5. A recess for inserting a cross-blade spring 11 is formed in the rear side of the plate 1, the middle portion of this spring 11 being slightly cupped so as to bear well against the ball which projects through an aperture in the bottom of the ball-cup 2. A clamping effect is produced between the ball and plate by the action of the spring and the plate is thus held in any position. Fingers 13 are provided on the plate 1 and project both beyond the edge and also beyond the front face of the plate. The fingers 13 may be fitted on the plate or made in one piece therewith. If one of the known artificial resin compositions is employed for making the plate it is advisable to make the fingers hollow.

The cloth 14 is made in the shape of a pocket with an aperture 15 with rubber draw ring 16 in the rear side of the pocket (Fig. 7). The woolly bearing surface is characteristic in that the loops are arranged in rows, a row 17 with long loops alternating with a row 18 with short loops. A good rubbing and distributing effect is attained by the cloth thus constructed.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:

1.—An apparatus for cleaning windows in which a plate carrying a cloth is con-

nected to a handle by a ball joint, characterized in that the cup of the ball joint has a cover provided with an apertur (10) to enable an element extending from the handle and carrying the ball to lie parallel to the rear surface of the plate.

2.—An apparatus as claimed in claim 1, characterized in that the element extending from the handle consists of an arm straight at its end carrying the ball, then off-set and bent at its other end at an angle at the point, where it is connected with the handle.

3.—An apparatus as claimed in claims 1 and 2, characterized in that the bottom of the cup has an aperture and the plate a recess for accommodating a cross-blade spring, which is cupped to fit the ball.

4.—An apparatus as claimed in claim 1, characterized by projections, fingers or the like, which may be hollow, projecting beyond the edge and the front face of the plate.

5.—An apparatus as claimed in claim 1, characterized in that the cleaning cloth is in the form of a pocket, having an aperture with rubber draw ring in its rear side.

6.—An apparatus as claimed in claims 1 and 5, characterized in that the loops of the cleaning cloth are arranged in rows, a row (17) with long loops alternating with a row (18) with short loops.

Dated this 11th day of August, 1933.

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[This Drawing is a reproduction of the Original on a reduced scale.]

Fig. 1

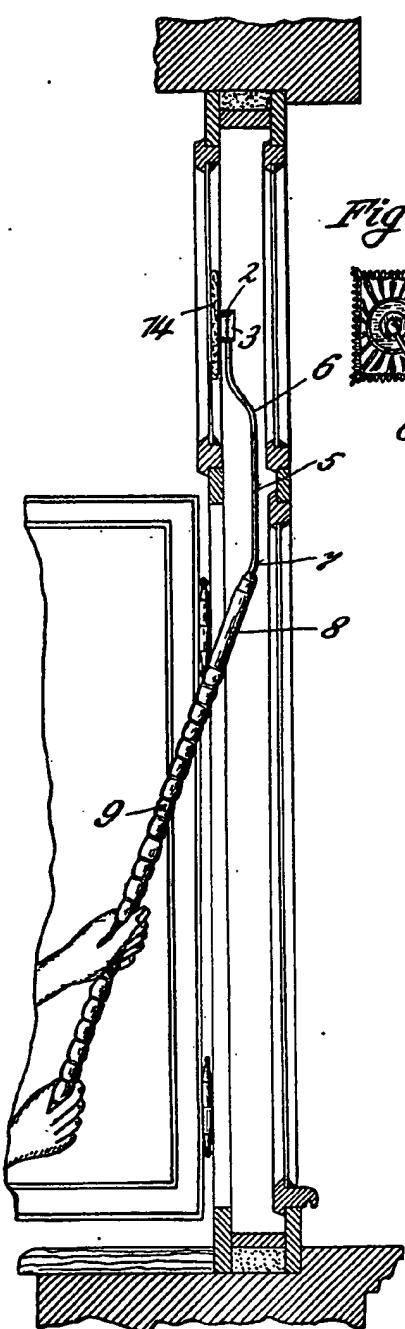


Fig. 2



Fig. 3

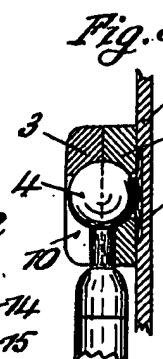


Fig. 4

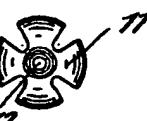


Fig. 5

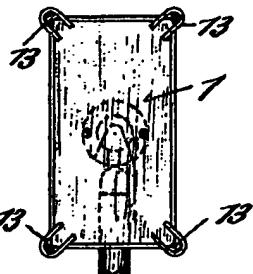


Fig. 6

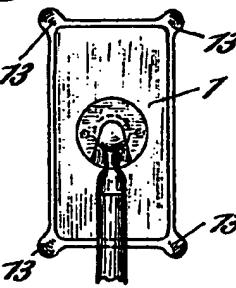


Fig. 7

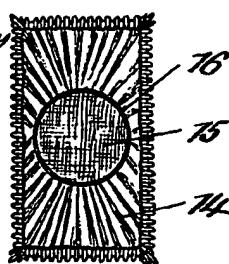


Fig. 8

